UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
VO, HUYEN X

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _10 December 2007_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _19-49_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _19-49_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _30 November 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The previous non-final office action has been withdrawn in favor of a new non-

final office action.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Bonastre et al. (IEEE Publication) in view of King (US 6532446).

4.   Regarding claim 47, Bonastre et al. disclose a speech recognition processing an

incoming audio stream containing human speech from a plurality of speakers and

having at least two speaker models and/or speaker-specific dictionaries, comprising: a

detector which detects a speaker change in the incoming audio stream (*sections 2.1-2.2*

on page 1178 and referring to abstract section); a gather which gathers speaker-specific

information with corresponding speaker-specific information of at least one

predetermined known speaker from among the plurality of speakers thus recognizing

the at least one predetermined speaker (*sections 2-3.2, input speech is processed to*

extract speech features, which are then compared with speech models of each enrolled speaker to determine a match).

Bonastre et al. fail to specifically disclose an interchanger which interchanges between the at least two speaker-specific dictionaries dependent on the detected speaker change and the corresponding recognized speaker. However, King further teaches an interchanger which interchanges between the at least two speaker-specific dictionaries dependent on the detected speaker change and the corresponding recognized speaker (*col. 5, lines 26-47 and col. 6, lines 35-67, user specific files are retrieve to process the user's input speech*).

Since the modified Bonastre et al. and King are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Bonastre et al. by incorporating the teaching of King in order to provide improve speech recognition accuracy.

5.   Claims 19-20, 22-26, 28-31, 33-39, 41-46, and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonastre et al. (IEEE Publication) in view of Glickman et al. (US 6067059), and further in view of King (US 6532446).

6.   Regarding claims 19, 31, 34, and 48, Bonastre et al. disclose a method, apparatus, and a program storage device readable by machine for processing a continuous audio stream containing human speech from a plurality of speakers related to at least one particular transaction, comprising the steps of: identifying a known

speaker from among the plurality of speakers (*abstract section page 117*); digitizing the continuous audio stream (*ADC is inherently included in a digital system*); detecting a speaker change in the digitized audio stream (*sections 2.1-2.2 on page 1178 and referring to abstract section*); performing a speaker recognition if a speaker change is detected (*section 3 on page 1179*).

Bonastre et al. fail to disclose the step of transcribing at least part of the continuous audio stream if a predetermined speaker is recognized, and wherein each speaker is processed using a different dictionary of different topics (*each enrolled speaker has their own models stored in the system before runtime*). However, Glickman et al. teach the step of transcribing at least part of the continuous audio stream if the known speaker is recognized (*col. 5, ln. 30-67*).

Since Bonastre et al. and Glickman et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Bonastre et al. by incorporating the teaching of Glickman et al. in order to provide automatic closed-caption using speaker-dependent models to enhance speech recognition accuracy.

The modified Bonastre et al. fail to specifically disclose that each speaker is processed using a different dictionary of different speaker-trained data. However, King further teaches that each speaker is processed using a different dictionary of different speaker-trained data (*col. 5, lines 26-47 and col. 6, lines 35-67, user specific files are retrieve to process the user's input speech*).

Since the modified Bonastre et al. and King are analogous art because they are

from the same field of endeavors, it would have been obvious to one of ordinary skill in

the art at the time of invention to modify Bonastre et al. by incorporating the teaching of

King in order to provide improve speech recognition accuracy.

7.   Regarding claims 25, 35, 39, 43, and 49, Bonastre et al. disclose a method,

apparatus, and program storage device readable by machine for processing a

continuous audio stream containing human speech of a plurality of speakers related to

at least one particular transaction, comprising the steps of: identifying a known speaker

from among the plurality of speakers (*abstract section page 117*); digitizing the

continuous audio stream (*ADC is inherently included in digital systems*); detecting a

speaker change in the digitized audio stream (*sections 2.1-2.2 on page 1178 and*

referring to abstract section); performing a speaker recognition if a speaker change is

detected (*section 3 on page 1179*); and wherein each speaker is processed using a

different dictionary of different topics (*each enrolled speaker has their own models*

stored in the system before runtime).

Bonastre et al. fail to disclose the step of indexing the audio stream with respect

to the detected speaker change if the known speaker is recognized. However,

Glickman et al. teach the step of indexing the audio stream with respect to the detected

speaker change if the known speaker is recognized (*col. 5, ln. 30-67, labeling "Bob" or*

"Alice" to transcribed text of corresponding audio segments).

Since Bonastre et al. and Glickman et al. are analogous art because they are

from the same field of endeavors, it would have been obvious to one of ordinary skill in

the art at the time of invention to modify Bonastre et al. by incorporating the teaching of

Glickman et al. in order to enable the system to use speaker-specific speech recognition

models for a particular speaker to improve speech recognition accuracy.

The modified Bonastre et al. fail to specifically disclose that each speaker is

processed using a different dictionary of different speaker-trained data. However, King

further teaches that each speaker is processed using a different dictionary of different

speaker-trained data (*col. 5, lines 26-47 and col. 6, lines 35-67, user specific files are*

retrieve to process the user's input speech).

Since the modified Bonastre et al. and King are analogous art because they are

from the same field of endeavors, it would have been obvious to one of ordinary skill in

the art at the time of invention to modify Bonastre et al. by incorporating the teaching of

King in order to provide improve speech recognition accuracy.

8.   Regarding claim 42, Bonastre et al. disclose an apparatus according to claim 39,

further comprising a monitor which continuously monitors a real-time continuous audio

stream and performing the steps of: digitizing the continuous audio stream (*ADC is*

inherently included in a digital system); detecting a speaker change in the digitized

audio stream (*sections 2.1-2.2 on page 1178 and referring to abstract section*);

performing a speaker recognition if a speaker change is detected (*section 3 on page*

1179). Bonastre et al. fail to disclose the step of transcribing at least part of the

continuous audio stream if a predetermined speaker is recognized. However, Glickman et al. teach the step of transcribing at least part of the continuous audio stream if the known speaker is recognized (*col. 5, ln. 30-67*).

Since Bonastre et al. and Glickman et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Bonastre et al. by incorporating the teaching of Glickman et al. in order to provide automatic closed-caption using speaker-dependent models to enhance speech recognition accuracy.

9.   Regarding claims 20, 26, 36-37, and 44-45, Bonastre et al. fail to disclose a method, apparatus and computer readable medium according to claims 19, 25, 31, and 39, comprising the further step of protocolling time information for detected speaker changes. However, Glickman et al. further teach the step of protocolling time information for detected speaker changes (*timing info 332 in figure 3*).

Since Bonastre et al. and Glickman et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Bonastre et al. by incorporating the teaching of Glickman et al. in order to improve alignment of audio segments with corresponding transcribed text segments.

10.   Regarding claims 22-23, 28-29, 38, and 46, Bonastre et al. further to disclose a method, apparatus, and computer readable medium according to claims 19, 25, 31, and

39, wherein the step of detecting a speaker change is accomplished by use of at least one characteristic audio feature, in particular features derived from the spectrum of the audio signal (*see figure 2, parameter extraction and feature vector of speech signal*); and wherein the step of performing a speaker recognition involves the particular steps of calculating a speaker signature from the audio stream and comparing the calculated speaker signature with at least one known speaker signature (*see figure 2, parameter extraction and feature vector of speech signal. Audio characteristics or speech features/parameters are signature of the target speaker*).

11.   Regarding claims 24 and 30, Bonastre et al. fail to disclose a method and apparatus according to claims 19 and 25, for use in a speech recognition or voice control system comprising at least two speaker-specific speaker models and/or dictionaries, wherein interchanging between the at least two speaker-specific dictionaries dependent on the detected speaker change and the corresponding recognized speaker. However, Glickman et al. further teach a speech recognition or voice control system comprising at least two speaker-specific speaker models and/or dictionaries (*col. 5, lines 43-62*).

        Since Bonastre et al. and Glickman et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Bonastre et al. by incorporating the teaching of Glickman et al. in order to improve speech recognition accuracy.

The modified Bonastre et al. fail to specifically disclose interchanging between the at least two speaker-specific dictionaries dependent on the detected speaker change and the corresponding recognized speaker. However, King further teaches interchanging between the at least two speaker-specific dictionaries dependent on the detected speaker change and the corresponding recognized speaker (*col. 5, lines 26-47 and col. 6, lines 35-67, user specific files are retrieve to process the user's input speech*).

Since the modified Bonastre et al. and King are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Bonastre et al. by incorporating the teaching of King in order to provide improve speech recognition accuracy.

12.   Regarding claims 33 and 41, Bonastre et al. fail to specifically disclose an apparatus according to claims 31 and 39, further comprising a scanner which automatically scans a continuous audio record, in particular a continuous audio stream recorded on a data or a signal carrier, and for detecting speaker changes in the continuous audio record. However, Glickman et al. further inherently teach such a scanner (*col. 2, lines 23-37, audio and text data are stored as two files, and files are stored in conventional disks or memory*).

Since Bonastre et al. and Glickman et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to further modify Bonastre et al. by incorporating the

teaching of Glickman et al. in order to enable the system to perform speaker change

detection and recognition on any source of audio data.

13.   Claims 21, 27, 32, and 40 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bonastre et al. (IEEE Publication) in view of Glickman et al. (US

6067059), in view of King (US 6532446), and further in view of Kimber et al. (US

5598507).

14.   Regarding claims 21, 27, 32, and 40, the modified Bonastre et al. fail to disclose

a method, apparatus, and computer readable medium according to claims 19, 25, 31,

and 39, wherein the step of detecting a speaker change and/or the step of performing a

speaker recognition is/are preceded by the further step of detecting non-speech

boundaries between continuous speech segments. However, Kimber et al. further

teach wherein the step of detecting a speaker change and/or the step of performing a

speaker recognition is/are preceded by the further step of detecting non-speech

boundaries between continuous speech segments (*col. 12, ln. 1-10, specifically

elements 212 or 216 in figure 12*).

        Since the modified Bonastre et al. and Kimber et al. are analogous art because

they are from the same field of endeavors, it would have been obvious to one of

ordinary skill in the art at the time of invention to further modify Bonastre et al. by

incorporating the teaching of Kimber et al. in order to improve speech recognition

accuracy.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Ortega et al. (US 6332122) is considered pertinent to the

claimed invention.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to HUYEN X. VO whose telephone number is (571)272-

7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huyen X Vo/   3/10/2008
Primary Examiner, Art Unit 2626

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